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Post-traumatic growth in (ex-) military personnel: Review and qualitative synthesis

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Abstract

Background: Military service can be a traumatic experience, and cause mental health problems in a minority of personnel, such as post-traumatic stress disorder (PTSD), which is linked to negative long-term outcomes. As a result, PTSD has received significant research attention. However, post-traumatic growth (PTG) is a newer construct, with comparatively little known about its presentation and development.

Aims: To qualitatively examine the experience of (PTG) in military and ex-military personnel.

Methods: A qualitative systematic search of electronic databases was conducted, with studies assessed for methodological quality and data analysed using Thematic Analysis. Nine qualitative studies, carried out between 2011-2016, met the inclusion criteria with 195 participants in total – military and ex-military personnel.

Results: Six themes were identified: appreciation for life; re-evaluating sense of purpose; improvement of personal human traits; bonding and connecting with others; integrating into society; and being proud of heritage & valuable to society.

Conclusions: The results of this review illustrate that military personnel may experience PTG due to deployment-related trauma exposure, and the presentation of PTG in this population is not dissimilar to that of civilians. This study highlights the need for additional research to quantify the long-term psychological impact of PTG and whether a focus on PTG may be helpful in psychological treatment for (ex-) military personnel.

Keywords: armed forces, PTG, military personnel, post-traumatic growth, qualitative, systematic review, veterans, mental health, wellbeing

Background

Military service can lead to trauma exposure in some cases. Trauma exposure can cause mental ill health in a minority of personnel, including post-traumatic stress disorder [PTSD; 1]. PTSD has been linked to long-term negative outcomes, such as comorbid psychiatric disorders and physical health problems. PTSD has received significant research attention since its inclusion in the DSM-III in 1980; however, post-traumatic growth (PTG) is a newer construct, with comparatively little known about its presentation and development [2].

PTG is defined as positive, meaningful psychological changes that an individual can experience as a result of coping with traumatic life events [3]. PTG is thought to occur following exposure to a traumatic event which challenges an individual's assumptive world, creating dissonance between pre- and post-trauma worldviews and causing significant psychological distress [4]. The drive to resolve such dissonance is perceived as growth, potentially leading to changes in an individual's self-perception, relationships with others, and life philosophy [4]. It should be noted that PTG is not a return to 'baseline' following trauma exposure, but rather it is an experience of improvement which for some individuals is deeply profound [4]. PTG can be experienced as an increased appreciation for life, a greater sense of personal strength and self-understanding, or a renewed appreciation for intimate relationships [5]. Experiences of PTG have been found to have implications for psychological outcomes, with several studies reporting an inverse association between high levels of PTG and fewer PTSD symptoms [6]. Moreover, self-reported experiences of PTG have been linked with improved health behaviours, such as a reduction in drug and alcohol consumption [7]. However, as some studies report a positive association between PTG and PTSD symptoms or no relationship between PTSD and improved wellbeing [8], thus the impact of PTG on adjustment remains unclear.

Investigating the experience of PTG in a military context is relevant given the substantial risk of trauma exposure and potential for psychological difficulties experienced by this population [9]. Not every service personnel exposed to a traumatic event will develop trauma symptoms and it is possible that military-related trauma exposure may result in other psychological changes, such as PTG. A more thorough understanding of PTG in military personnel may have implications for clinical practice by delineating whether or not PTG could be usefully incorporated into psychological interventions for service personnel and veterans [3]. As experiences of PTG are highly personal, the use of qualitative methods is particularly useful for investigating PTG as they allow military personnel to describe their experience in their own words. Although several research studies investigating PTG in military personnel exist [e.g. 10], to date, a synthesis and critical evaluation of the available data remains outstanding. The aim of this study is to integrate and interpret the results of qualitative studies which explored experiences of PTG in military and (ex-) military personnel samples, critically evaluate the methodological quality of identified studies, and identify directions for future research and implications for clinical practice.

Methods

We conducted a systematic search for studies that investigated PTG in (ex-) military personnel using qualitative methods. The search was conducted in October 2016 with no specific timeframe desired for the studies. The following electronic databases were searched: PsycINFO, Medline, PubMed, PILOTS, and EMBASE with keywords related to *post-traumatic growth* and *(ex-) military personnel*, including all search variants (see Supplementary Table 1). We did not include key words relating to qualitative methods in our search terms as this did not appear to lead to improvements in the accurate identification of studies. Instead, article abstracts were read to identify qualitative studies and prevent the exclusion of potentially eligible studies. Additionally, we manually searched reference

sections of relevant review papers, dissertations, book chapters and, empirical articles to identify any studies that had not been identified in the literature databases. Non-English studies were noted but excluded due to insufficient resources for translation.

To be considered for inclusion, studies had to include the following:

- A. Military personnel – Current servicemen, women and veterans defined as a combatant from any faction within the army (Army, Navy, Air Force, Special Forces, those who have left the Armed Forces (AF) etc., irrespective of participant age, gender or nationality),
- B. Participants had to report involvement in military training or deployment and exposure to trauma while on duty,
- C. An examination of PTG,
- D. Conducted using qualitative methods and analysis.

Articles were excluded if the study was a review that did not offer new data or only presented quantitative analysis; single case studies; and articles where the full text was unobtainable.

Nine articles met our inclusion criteria for review. Study characteristics and methodologies are described in Table 1. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram is presented in Figure 1 [11]. The term ‘(ex-) military personnel’ is used throughout this review to refer to both service personnel and veterans, as included studies often used general language and did not distinguish whether participants were veterans or in active military service.

Insert Table 1 & Figure 1 here

The quality of the nine included articles were appraised to assess their suitability for inclusion in this review. The Critical Appraisal Skills Programme [12] measure was used to assess study quality with the scores of each study presented in Supplementary Table 2. The CASP was specifically designed to assess the quality of qualitative studies and items included assessments of study design, sample size, data collection method etc. Based on the final score, studies were classified as low (score: 0-3), medium (score: 4-7), and high (score: 8-10) quality. Two authors (AH & VW) independently assessed study quality with good agreement and any discrepancies discussed and resolved following a re-examination of the data.

We extracted the following data from the studies: (a) participant demographic information (e.g. number of participants, participant age, gender, etc.); (b) data collection and analysis methods; (c) reported deployment exposure; and (d) all relevant PTG-related findings.

After extracting the results of each study, the relevancy of these findings to our review aim was examined. The findings that were relevant to our review aims were synthesized using thematic analysis [13]. These summaries of the results were open-coded by the first author (AH), a process whereby concepts are divided into categories based on their properties [14]. This was done through several readings of the findings, where relationships between the different results were examined and themes and overarching concepts were determined. After analysing the data of all included studies, authors discussed all results and decided which themes were present in each article [15].

Following the open-coding the summaries of all included studies, the identified concepts were grouped in relationship to one another [15]. This process was conducted in two ways: i) on the frequency with which the concept was present in the studies, indicating how effective the concept is [15]; and ii) by the topic that the themes related to, which we termed the domains [15]. Each concept that was derived from the process of open-coding the articles

was organised into domains, with each domain pertaining to one central theme. Concepts and domains were then described in detail and expanded on [15].

All PTG experiences included in this review were reported by AF (ex-) military personnel who returned from deployment. Participant demographic information (e.g. sample size, age, gender, etc.) and locations of deployment operations were considered when assessing and constructing the themes related to PTG following trauma exposure.

Insert Table 2 here

Results

Nine studies met the inclusion criteria of the review. They were published between 2011-2016, indicating that PTG research is a relatively recent phenomenon. Most studies collected data via in-depth or semi-structured interviews (see Table 1). One study collected data using an online survey with open-ended questions [17]. Several methods of qualitative analysis were utilised to assess the PTG experience of (ex-) military personnel and explore their specific themes, including thematic analysis, grounded theory, and interpretive phenomenological analysis.

In terms of study quality, all studies adequately described their research design and employed a range of qualitative methods (see Supplementary Table 2). Sample sizes across all studies were of a similar range, with the majority of studies using adequate recruitment strategies and data collection methods. Inclusion and exclusion criteria were documented in only three of the nine studies [18; 19; 2]. Statements regarding ethical considerations and permission were provided in four of the nine included studies [20; 21; 22; 2]. Six studies provided a clear statement of qualitative findings, whilst the remaining three studies did not

succinctly communicate their key findings or discuss the credibility of their findings [26; 23; 24]. Included studies discussed possible implications for further research, with some identifying new avenues for research. However, few studies discussed alternative explanations for their findings (Supplementary Table 2).

Most studies included participants who had been deployed to Iraq and Afghanistan. Few studies described which branch of military service participants had served in, with the exception of four studies [18; 20; 22; 24] which reported that the majority of their participants had served in the Army. Time since trauma, trauma types, or definitions of what constituted military-related trauma were not available. Studies did report that their interview questions explored experiences of PTG as result of trauma exposure on duty (although index traumas were not specified) and how PTG manifested post-deployment. Only two studies [19, 24] assessed participant PTSD at the time of the study interview; however, neither provided information regarding the number of participants meeting diagnostic criteria. One study included items of self-reported medical problems, with 67% ($n=37$) of participants reporting PTSD, although whether patients had received a formal diagnosis was unclear [17]. One study [2] reported that participants had been recruited following treatment for PTSD. Only one study [19] examined PTSD symptoms in relation to PTG, the results of which are discussed below.

Interview schedule questions ranged from relationship-focused items, such as *'In what way(s) is relationship functioning affected when couples report different levels of trauma symptoms (high vs. low) and relationships satisfaction (high vs. low)?'* [19], to more personal questions (e.g. *'Did your worldview change when you got back from [deployment compared to] when you first went over and, if so, how?'* [18]. Two studies did not detail any of the interview questions utilized [23; 24], and one study only provided a small sample of

questions for illustrative purposes [2]. The remaining six studies clearly displayed all interview questions, either in text or in the appendices.

The referencing style used in the following section on the results will take on a slightly altered style, referencing only to the studies reviewed in this article. Table 1 contains a legend to allow cross-referencing of these references with the article in question.

All concepts in this domain are directly linked to (ex-) military personnel themselves. This domain pertains to the (ex-) military personnel's emotional reactions, coping strategies and the ways they gave meaning to what happened post-trauma. These concepts are: (i) appreciation for life, (ii) re-evaluating sense of purpose, and (iii) improvement in personal traits.

Appreciation for life. Six articles discussed how (ex-) military personnel experienced a new appreciation for life after returning from combat (2, 3, 5, 6, 7, 9), which resulted from traumatic events they have been through. Some (ex-) military personnel reported a new appreciation for other cultures which they gained through their multiple tours of duty (3), others mentioned being able to return home as a sense of redemption (9). This sense of redemption came in the form of being able to see their friends and family again, being proud to serve their country and feeling safe at home. Focusing on the positives of life (7) with a greater appreciation of the smaller things in life (2, 5, 7) was another common experience, as seen in the following quote from an (ex-) military personnel: *"Little things, like, simple things, like 'what a lovely day!'," You don't just say it in passing, the sun is out, the sun is huge!"* (2). Moreover, (ex-) military personnel also reported experiencing a more nuanced, less black and white view of the world following exposure to traumatic experiences (2), as demonstrated by the following quote: *"I could think more logically about stuff and decisions and how to deal with it, anxiety and anger in particular, I could just rationalise it and*

suddenly realise I was able to make positives out of it” (2). Lastly, the feeling of freedom, being themselves (6), and having a sense of importance and gratitude for life (5) were also experienced by (ex-) military personnel. This allowed them to review their lives and find contentment despite the difficulties they faced (2).

Re-evaluating sense of purpose. In six articles, the concept of re-evaluating one’s sense of purpose in life (2, 3, 4, 5, 6, 8) was raised. (Ex-) military personnel reported creating a new sense of ambition (6), increasing ownership (the sense of being in full control of one’s life) and developing a sense of purpose (2). This is demonstrated by the quote: *“My direction has changed, I’m more accepting of who I am, I’ve chosen my path” (2).* This primarily manifested itself in (ex-) military personnel wanting to contribute to the community in some form and looking for work outside the military was a common approach. A change in perspective on life was also experienced (8), with some (ex-) military personnel stating that they felt the need to create a new sense of direction for themselves (5). This was reportedly accomplished by taking their responsibilities more seriously by being better family members, finding employment or trying to positively contribute to those around them. Many (ex-) military personnel also reported engaging in introspective, self-reflection at the end of their deployment(s) (4), which is a plausible reason for the PTG they experienced. This self-reflection was thought to be a valuable tool for taking lessons from life (3), and allowed them to review how they have lived their life thus far and the changes that were needed (6).

Improvement of personal human traits. One of the (ex-) military personnel’ most unanimous PTG experiences was a positive change in personality (2, 3, 4, 5, 9). (Ex-) Military personnel reported experiencing increased empathy, being more compassionate and sensitive to the feelings of others, and being better prepared for future unexpected events (4, 9). Other responses included feelings of increased maturity, self-discipline, confidence, responsibility and better leadership. (Ex-) Military personnel also reported feelings of heightened

selflessness, gratitude (3, 5), and the acceptance of change (2). *“Everyone has their ups and downs...everyone goes through life and if you are happy all the time, it wouldn’t be normal”* (2).

The only concept pertaining to this domain is (i) bonding and connecting with others. This domain refers to how an (ex-) military personnel’s relationships with others can change due to their exposure to combat-related trauma and experiences of PTG.

Bonding and connecting with others. This concept was discussed in four articles (2, 3, 5, 7). (Ex-) military personnel described how being deployed and experiencing extreme trauma made them feel close to their colleagues, who they described as family, expressing how they felt closer to them than their own biological family upon returning from deployment (3). However, overall, (ex-) military personnel reported that following deployment, they were better able to appreciate good relationships with their superiors and civilians during deployment which translated into forming better relationships with family members upon return (3).

While not reported by all (ex-) military personnel, many described how returning home from combat allowed them to bond better with their spouse, making them stronger as a couple (7). As one (ex-) military personnel stated: *“The deployment helped to bond us together better. Helped us to be able to be stronger and to really see what our relationship is made out of”* (7). One article discussed (ex-) military personnel’s experiences of greater appreciation for their relationships with others post-trauma. The ability to better appreciate family members, even distant family who lived in other countries, was experienced as beneficial. For example, one soldier said their increased appreciation for family helped them manage stressful life events (5). Taken together, forming better connections with others was a clear benefit of trauma-induced PTG and could act as a protective mechanism against the development of PTSD post-deployment (2).

This domain describes the benefits to the community that arose from the PTG experiences of (ex-) military personnel. The concepts included within this domain are: (i) integrating into society, and (ii) being proud of heritage and valuable to society.

Integrating into society. A form of PTG reported by many (ex-) military personnel was their integration back into society (1, 4, 8). The most common form of integration and reconnecting with society was via access to education by enrolling at a college or university (1, 4). This equipped (ex-) military personnel with the skills needed to become marketable and employable. This form of integration into society highlights the desire of (ex-) military personnel to move on and grow positively. Although only reported in one study (1), being able to work with teachers and fellow students, learn new skills, take advice and accept criticism was beneficial for (ex-) military personnel as these social and economic resilience techniques allowed them to grow, and reportedly assisted in coping with PTSD (8). Becoming a more skilled and competent professional in the workplace was also another PTG experience of (ex-) military personnel once they began civilian work (8).

Being proud of heritage & feeling valuable to society. In four studies, several (ex-) military personnel reported feeling proud and honoured following their military service and intense combat exposure (3, 4, 8, 9). There was unanimous agreement that exposure to trauma led to a form of growth where (ex-) military personnel felt challenged and outside of their comfort zone, making them feel more of an asset to society (3). Notably, in addition to strong feelings of patriotism, one (ex-) military personnel felt that after his time in combat he had no desire to own a gun, although he was legally able to, as he felt the need to keep society safe from firearms (4). Other (ex-) military personnel discussed how their military experience influenced their future career decisions, with (ex-) military personnel entering social work (3), teaching and mentoring (9) as a method to continue giving back to their community.

Discrepancies in experiences of PTG were observed. Some (ex-) military personnel reported exposure to deployment-related trauma as “just another experience” or having had “no effect at all on my personal growth” (4). One possible explanation for this response may be that these (ex-) military personnel deployment-related trauma exposure did not reach a sufficient ‘world shattering effect’ to activate the personal growth process (4). Another reason could also be that they experienced a shorter period of combat exposure or were not exposed to combat during deployment, both of which may be insufficient to trigger a PTG experience post-cessation. As this view was reported in only one study (4), it is possible this experience may not be generalisable to other (ex-) military personnel.

Another discrepancy within the results was the variation in interpersonal PTG and PTSD symptoms. Experiences of PTG often varied amongst those with high-levels of PTSD symptoms. Some individuals reported improved marital satisfaction, others only individual growth (e.g. heightened spiritual development), while several experienced no improvements in relationship cohesion (7).

Discussion

The review aimed to explore the experience and nature of PTG in (ex-) military personnel. Common themes that emerged were organised into three main domains: individual, family, and community. Key sub-themes included bonding and connecting with others, appreciation for life, and integrating into society.

A core finding of this review, emphasised by the majority of (ex-) military personnel, was their improved relationships with others as a form of PTG following trauma exposure (time since trauma was not mentioned in any of the papers). This experience is relevant to all three domains, especially the family domain. This facet of PTG may be beneficial as social support can be an important protective factor against the development of psychological

difficulties post-trauma, including PTSD [25]. A greater appreciation for, and improvements in, social relations with others is consistent with the broader PTG literature as appreciation for others has also been reported in non-military personnel following trauma exposure [26]. Similarly, this review highlights that a PTG experience (ex-) military personnel had post-deployment, was a greater appreciation for life. This may also have implications for wellbeing as several empirical studies have indicated that appreciation for life contributed towards the experiences of happiness, subjective wellbeing and life satisfaction post-trauma [e.g. 27].

Interestingly, most (ex-) military personnel who experienced PTG reported a strong desire to re-integrate into civilian life. This finding relates to the community domain and suggests that PTG may stimulate or encourage a positive transition experience from AF service. Wishing to integrate into civilian life led to many personnel seeking educational opportunities, increasing their employment prospects, which further contributed to their experiences of PTG. This may have implications for transition experiences as, in the U.S., military veterans have been found to have higher rates of unemployment (5.3% unemployment rate) compared to civilians [4.7% unemployment rate; 28]. PTG in the form of a heightened desire to integrate into civilian life may positively impact veteran wellbeing as a smooth transition to civilian life and gaining employment can facilitate PTSD recovery [29]. Currently, no transition interventions for veterans incorporating this feature of facilitating PTG exist and could be explored in future trials. However, it is also possible that the reported desire to re-integrate into civilian life may be a result of exposure to military-related trauma and potentially reflect a desire to leave a military career. Future research examining the causes for this facet of PTG would better elucidate this experience and improve our understanding of military personnel's appraisals following deployment-related trauma.

Included studies collected data from (ex-) military personnel who reported retrospectively on their traumatic experiences; however, information on a number of potentially relevant factors, including the amount of time since the trauma, trauma type, (need for) psychological treatment, childhood adversity, post-trauma appraisals and distress, etc. was not reported. It is possible these factors may have influenced the presence and nature of PTG. For example, the passing of time may be important as this could allow for the manifestation of any PTG effects, and subsequent positive behaviours, to become apparent and have an effect on participants [4]. A prerequisite for PTG is significant emotional distress [4] and this may explain the lack of PTG reported in one study as (ex-) military personnel were deployed on Operation Desert Storm which was a relatively condensed, less violent skirmish than other combat missions included in this review [31]. While there are undoubtedly a multitude of non-combat related events that may be experienced as traumatic during deployment, the amount of combat involvement, role played by (ex-) military personnel, and level of engagement with the conflict could potentially be theorised to be components which lead to a sufficient PTG experience. This suggests the need for exposure to sufficient and perhaps prolonged threat to cause PTG and warrants additional research. As it stands, the prevalence of PTG in (ex-) military personnel and whether the lack of PTG observed in the present study is a common occurrence remains unknown. Investigations of whether (ex-) military personnel's experiences of PTG vary by the amount of time post-trauma, trauma event type and predisposing factors (e.g. age, sex, etc.) is also needed to further our knowledge of PTG in this population.

All the included papers were of a moderate to high quality, with the lowest being 6 (3, 9) and the highest being 10 (8). Studies that received lower quality rating scores often did not adequately consider the relationship between the researcher and participants (e.g. the role of the researcher in data collection and analysis) or use an appropriate recruitment strategy

given the research aims. In light of this, we suggest future qualitative studies of PTG include additional information regarding participant selection, data collection and analysis, in keeping with the COREQ guidelines for reporting in qualitative studies [32].

The results of the present study may have implications for healthcare professionals working with (ex-) military personnel as a greater understating and, if possible, facilitation of PTG may potentially have a place in future PTSD treatment. For example, interventions using trauma-focussed cognitive behavioural therapy (TF-CBT) with a focus on augmenting PTG found participants to report significantly improved emotional regulation and a reduction in PTSD symptoms compared to controls [33; 34; 35]. It is possible a similar approach focusing on improving appreciation for life and relationships with others to facilitate PTG may enhance treatment effects for the (ex-) military populations and reduce distress post-trauma [32]. As there are several challenges treating military-related PTSD [36; 37], harnessing features of PTG during the course of treatment could be beneficial and warrants further investigation.

A strength of this review was the use of qualitative research methods which allowed for the examination of (ex-) military personnel's subjective experiences of combat exposure and PTG. This prevented vital concepts being lost or misrepresented. However, this review was limited by several factors that should be considered when interpreting the results. First, we included published and unpublished studies that investigated the concept of PTG to provide a comprehensive overview of PTG in military personnel [20; 18; 21; 22]. The inclusion of grey literature may have introduced bias as the quality of grey literature may be lower. However, peer review is not always a guarantee of study quality [38] and the methodological quality of all included studies was assessed to ensure all studies were of good quality. Second, it could be argued that by synthesising the results of several qualitative studies, the findings of individual studies are decontextualized, and the concepts identified in

one context are not necessarily applicable to others [13]. To counter this, descriptions of all relevant concepts across studies were provided as well as information regarding how each concept was arranged by domain and frequency [see Table 2; 13]. The provision of such information allows readers to “judge for themselves whether or not the contexts of the studies the review contained were similar to their own” [13]. Third, included studies did not provide information regarding several trauma-related variables (e.g. time since trauma, trauma type, social support post-trauma, whether psychological treatment was accessed, etc.) which limited the interpretation of the findings and this information should be included in future studies. A final limitation was that all participants were (ex-) military personnel from either the U.K., U.S. or Finland, most whom were male. This may limit the generalisability of the results and future research is needed to explore experiences of PTG in other contexts.

Despite these limitations, our results indicate that many (ex-) military personnel experienced growth as a result of trauma experienced on duty, which may allow them to function better and enjoy fulfilling relationships with others. This review contributes to the literature by furthering our understanding of the nature of PTG in military samples and supports current knowledge on the subject [4]. Based on these findings, additional research is needed to examine whether PTG can be successfully incorporated into psychological interventions, as interventions with civilians have shown promising results. Nonetheless, given the small number of studies included, only tentative conclusions are made about the experience of PTG in (ex-) military service personnel.

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